

are contaminated, it may take years to clean up, depending on the pollutant. Compared to surface water pollution, investigations and remediation of groundwater are often more difficult, costly, and extremely slow. For these reasons Title 22-based limits will remain in the NPDES permit. However, the limits will be expressed as monthly averages instead of daily maximums.

9. **Antidegradation Policy** - On October 28, 1968, the State Board adopted Resolution No. 68-16, *Maintaining High Quality Water*, which established an antidegradation policy for State and Regional Boards. The State Board has, in State Board Order No. 86-17 and an October 7, 1987 guidance memorandum, interpreted Resolution No. 68-16 to be fully consistent with the federal antidegradation policy. Similarly, the CWA (section 304(d)(4)(B)) and USEPA regulations (40 CFR, Section 131.12) require that all permitting actions be consistent with the federal antidegradation policy. Together, the State and Federal policies are designed to ensure that a water body will not be degraded resulting from the permitted discharge. The provisions of this Order are consistent with the antidegradation policies.

10. **Watershed Approach** - This Regional Board has been implementing a Watershed Management Approach (WMA), to address water quality protection in the Los Angeles Region, as detailed in the Watershed Management Initiative (WMI). The WMI is designed to integrate various surface and ground water regulatory programs while promoting cooperative, collaborative efforts within a watershed. It is also designed to focus limited resources on key issues and use sound science. Information about the Los Angeles River Watershed and other watersheds in the region can be obtained from the Regional Board's web site at <http://www.swrcb.ca.gov/rwqcb4/> and clicking on the word "Watersheds".

Pursuant to this Regional Board's watershed initiative framework, the Los Angeles River Watershed Management Area was the targeted watershed for fiscal year 1998-1999. However, the NPDES permit renewals were re-scheduled for the 2003-2004 fiscal year so that provisions of the CTR and SIP could be incorporated into the permits. However, delays in the renewal were caused by lengthy litigation.

VII. REGULATORY BASIS FOR EFFLUENT AND RECEIVING WATER LIMITS AND OTHER DISCHARGE REQUIREMENTS

1. **Water Quality Objectives and Effluent Limits** - Water Quality Objectives (WQOs) and effluent limitations in this permit are based on:

- A. Applicable State Regulations/Policies/Guidances

- a. The plans, policies and water quality standards (beneficial uses + objectives + antidegradation policy) contained in the 1994 *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, as amended, including chemical constituent limitations established by incorporating the California Code of Regulations, Title 22, Maximum Contaminant

Levels designed to protect the existing drinking water use of the receiving groundwaters;

- b. California Toxics Rule (40 CFR 131.38);
- c. The State Board's "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (the State Implementation Plan or SIP);
- d. Administrative Procedures Manual and Administrative Procedure Updates; and,
- e. Porter-Cologne Water Quality Act (Water Code § 13000 et seq.).

B. Applicable Federal Regulations/Policies/Guidances

- a. Federal Clean Water Act;
- b. 40 CFR, Parts 122, 131; among others;
- c. Best Professional Judgment (pursuant to 40 CFR 122.44);
- d. USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final May 31, 1996;
- e. USEPA Whole Effluent Toxicity (WET) Control Policy July 1994;
- f. Inspectors Guide for Evaluation of Municipal Wastewater Treatment Plants, April 1979 (EPA/430/9-79-010);
- g. Fate of Priority Pollutants in Publicly Owned Treatment Works Pilot Study October 1979 (EPA-440/1-79-300);
- h. *Technical Support Document for Water Quality Based Toxics Control*, March 1991 (EPA-505/ 2-90-001);
- i. *U.S. EPA NPDES Permit Writers' Manual*, December 1996 (EPA-833-B-96-003);
- j. USEPA's *National Recommended Water Quality Criteria: 2002*, November 2002 (EPA-822-R-02-047); and,
- k. USEPA Drinking Water Standards, 40 CFR 141 and 142, Federal Register Vol.57, No. 138 (July 17, 1992).

Where numeric water quality objectives have not been established in the Basin Plan, 40 CFR Part 122.44(d) specifies that water quality based effluent limits may be set based on USEPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses.

2. **Mass and Concentration Limits** – 40 CFR section 122.45(f)(1) requires that, except under certain conditions, all permit limits, standards, or prohibitions be expressed in terms of mass units. 40 CFR section 122.45(f)(2) allows the permit writer, at their discretion, to express limits in additional units (e.g., concentration units). The regulations mandate that, where limits are expressed in more than one unit, the permittee must comply with both.

Generally, mass-based limits ensure that proper treatment, and not dilution, is employed to comply with the final effluent concentration limits. Concentration-based effluent limits, on the other hand, discourage the reduction in treatment efficiency during low-flow periods and require proper operation of the treatment units at all times. In the absence of concentration-based effluent limits, a permittee would be able to increase its effluent concentration (i.e., reduce its level of treatment) during low-flow periods and still meet its mass-based limits. To account for this, this permit includes mass and concentration limits for some constituents, except during wet-weather, storm events that cause flows to the treatment plant to exceed the plant's design capacity.

3. **Maximum Daily Effluent Limitations** – Pursuant to 40 CFR section 122.45(d)(2), for POTWs continuous discharges, all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall, unless impracticable, be stated as average weekly and average monthly discharge limitations. It is impracticable to only include average weekly and average monthly effluent limitations in the permits, because a single daily discharge of certain pollutants, in excess amounts, can cause violations of water quality objectives. The effects of certain pollutants on aquatic organisms are often rapid. For many pollutants, an average weekly or average monthly effluent limitation alone is not sufficiently protective of beneficial uses. As a result, maximum daily effluent limitations, as referenced in 40 CFR section 122.45(d)(1), are included in the permit for certain constituents as discussed in this Fact Sheet.
4. **Pretreatment** – Pursuant to 40 CFR section 403, the City developed and has been implementing an approved industrial wastewater Pretreatment Program. This Order requires implementation of the approved Pretreatment Program.
5. **Sludge Disposal** - To implement CWA Section 405(d), on February 19, 1993, the USEPA promulgated 40 CFR, Part 503 to regulate the use and disposal of municipal sewage sludge. This regulation was amended on September 3, 1999. The regulation requires that producers of sewage sludge meet certain reporting, handling, and disposal requirements. It is the responsibility of the Discharger to comply with said regulations that are enforceable by USEPA, because California has not been delegated the authority to implement this program.
6. **Storm Water Management** – CWA section 402(p), as amended by the Water Quality Act of 1987, requires NPDES permits for storm water discharges. Pursuant to this requirement, in 1990, USEPA promulgated 40 CFR section 122.26 that established requirements for storm water discharges under a NPDES program. To facilitate compliance with federal regulations, on November 1991, the State Board issued a statewide general permit, *General NPDES Permit No.*

CAS000001 and Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities. This permit was amended in September 1992 and reissued on April 17, 1997 in State Board Order No. 97-03-DWQ to regulate storm water discharges associated with industrial activity. The Burbank WRP is covered by general NPDES permit No. CAS000001.

7. **Clean Water Act Effluent Limitations** - Numeric and narrative effluent limitations are established pursuant to Section 301 (Effluent Limitations), Section 302 (Water Quality-Related Effluent Limitations), Section 303 (Water Quality Standards and Implementation Plans), Section 304 (Information and Guidelines [Effluent]), Section 305 (Water Quality Inventory), Section 307 (Toxic and Pretreatment Effluent Standards), and Section 402 (NPDES) of the CWA. The CWA and amendments thereto are applicable to the discharges herein.
8. **Antibacksliding Policies** - Antibacksliding provisions are contained in Sections 303(d)(4) and 402(o) of the CWA, and in 40 CFR section 122.44(l). Those provisions require a reissued permit to be as stringent as the previous permit with some exceptions. Section 402(o) of the CWA establishes express statutory language prohibiting the backsliding of effluent limitations. It consists of the following three parts:
 - A. Section 402(o)(1) prohibits (subject to exceptions in section 303(d)(4) and/or 402(o)(2)) the relaxation of effluent limitations for two situations:
 - a. When a permittee seeks to revise a technology-based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent, and
 - b. When a permittee seeks relaxation of an effluent limitation which is based upon a changed State treatment standard or water quality standard.
 - B. Section 402(o)(2) outlines specific exceptions to the general prohibition against establishment of less stringent effluent limitations. Codified in the NPDES regulations at 40 CFR 122.44(l), Section 402(o)(2) provided that the establishment of less stringent limits may be allowed where:
 - a. There have been material and substantial alterations or additions to the permitted facility which justify this relaxation;
 - b. New information (other than revised regulations, guidance, or test methods) is available that was not available at the time of permit issuance which would have justified a less stringent effluent limitation;
 - c. Technical mistakes or mistaken interpretations of the law were made in issuing the permit under Section 402(a)(1)(b);

- d. Good cause exists due to events beyond the permittee's control (e.g., acts of God) and for which there is no reasonably available remedy;
- e. The permit has been modified under certain specified sections of the CWA; or,
- f. The permittee has installed and properly operated and maintained required treatment facilities, but still has been unable to meet the permit limitations (relaxation may only be allowed to the treatment levels actually achieved).

Although the statute identified six exceptions where effluent limitations may be relaxed, the language specifically stated that exception "c" (as listed above) does not apply to water quality-based effluent limitations. Further, exception "e" as listed above only concerns sections of the CWA governing technology-based limits. Thus, exceptions c & e would only apply to technology-based effluent limitations.

- C. Section 402(o)(3) prohibits the relaxation of effluent limitations in all cases if a revised effluent limitation would result in a violation of applicable effluent limitation guidelines or water quality standards, including antidegradation requirements. Thus, even if any of the antibacksliding exceptions outlined in either the statute or regulations are applicable, Section 402(o)(3) acts as a floor and restricts the extent to which effluent limitations may be relaxed. This requirement affirms existing provisions of the CWA that require limits, standards, and conditions to ensure compliance with applicable technology-based limits and water quality standards.

- 9. ***Applicable Water Quality Objectives*** - 40 CFR, Section 122.44(d)(vi)(A) requires the establishment of effluent limitations to attain and maintain applicable narrative and numeric water quality criteria to protect the designated beneficial use.

The Basin Plan includes narrative and numeric Water Quality Objectives (WQOs). The CTR promulgates numeric aquatic life criteria for 24 toxic pollutants and numeric human health criteria for 92 toxic pollutants. A compliance schedule provision in the CTR and the SIP authorizes the State to issue schedules of compliance for new or revised NPDES permit limits based on the federal CTR criteria when certain conditions are met. CTR's Compliance Schedule provisions sunset on May 18, 2005. After this date, the provisions of the SIP allow for Compliance Schedules not to exceed five years from issuance or past May 17, 2010, whichever is sooner. Where numeric water quality objectives have not been established in the Basin Plan, 40 CFR section 122.44(d) specifies that WQBELs may be set based on USEPA criteria and supplemented, where necessary, by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses.

- 10. ***Types of Pollutants*** - For CWA regulatory purposes, pollutants are grouped into

three general categories under the NPDES program: conventional, toxic, and non-conventional. By definition, there are five conventional pollutants (listed in 40 CFR 401.16) – 5-day biochemical oxygen demand, total suspended solids, fecal coliform, pH, and oil and grease. Toxic or “priority” pollutants are those defined in Section 307(a)(1) of the CWA (and listed in 40 CFR 401.15 and 40 CFR 423, Appendix A) and include heavy metals and organic compounds. Non-conventional pollutants are those which do not fall under either of the two previously described categories and include such parameters as ammonia, phosphorous, chemical oxygen demand, whole effluent toxicity, etc.

11. **Technology-Based Limits for Municipal Facilities (POTWs)** – Technology-based effluent limits require a minimum level of treatment for industrial/municipal point sources based on currently available treatment technologies while allowing the Discharger to use any available control techniques to meet the effluent limits. The 1972 CWA required POTWs to meet performance requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level—referred to as “secondary treatment”—that all POTWs were required to meet by July 1, 1977. More specifically, Section 301(b)(1)(B) of the CWA required that USEPA develop secondary treatment standards for POTWs as defined in Section 304(d)(1). Based on this statutory requirement, USEPA developed national secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all POTWs and identify the minimum level of effluent quality to be attained by secondary treatment in terms of five-day biochemical oxygen demand, total suspended solids, and pH.
12. **Water Quality Based Effluent Limits (WQBELs)** - Water quality-based effluent limits are designed to protect the quality of the receiving water by ensuring that State water quality standards are met by discharges from an industrial/municipal point source. If, after technology-based effluent limits are applied, a point source discharge will cause, have the reasonable potential to cause, or contribute to an exceedance of an applicable water quality criterion, then 40 CFR 122.44(d)(1) requires that the permit contain a WQBEL. Although the CWA establishes explicit technology-based requirements for POTWs, Congress did not exempt POTWs from additional regulation to protect water quality standards. As a result, POTWs are also subject to WQBELs. This was upheld by the Appellate Court in the *City of Burbank, City of Los Angeles v. State Water Resources Control Board* case. Applicable water quality standards for the Los Angeles River are contained in the Basin Plan and CTR, as described in previous findings.
13. **Water Quality Based Effluent Limitations for Toxic Pollutants.** Toxic substances are regulated in this permit by water quality based effluent limitations derived from the 1994 Basin Plan, the CTR, and/or best professional judgment (BPJ) pursuant to Part 122.44. If a discharge causes, has a reasonable potential to cause, or contribute to a receiving water excursion above a narrative or numeric objective within a State water quality standard, federal law and regulations, as specified in 40 CFR 122.44(d)(1)(i), and in part, the SIP, require the establishment of WQBELs that will protect water quality. As documented in the fact sheet, pollutants exhibiting reasonable potential in the discharge, authorized in this Order, are identified in the Reasonable Potential Analysis (RPA) section and have

final effluent limits. Reasonable potential was not triggered for some of the 126 priority pollutants and final limits cannot be determined at this time. The Discharger is required to gather the appropriate data and the Regional Board will determine if final effluent limits are needed. If final limits are needed, the permit will be reopened and limits will be included in the permit.

14. ***Stringency Requirements for Individual Pollutants.*** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD and TSS. Restrictions on BOD and TSS are specified in federal regulations as discussed in findings. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum federal technology-based requirements that are necessary to meet water quality standards.

This Order contains a pollutant restrictions that is more stringent than applicable federal requirements and standards. Specifically, this Order includes an effluent limitation for bis(2-ethylhexyl)phthalate (based on the Basin Plan WQO which incorporates by reference the Title 22 MCLs), that is more stringent than the applicable federal standards, but that is nonetheless necessary to meet numeric objectives or protect beneficial uses of both surface water (under the CWA) and groundwaters (under CWC). The rationale for including these limitations is explained in Section X.2 of this Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241, as discussed in Section X.3 of this Fact Sheet.

The effluent limitations for arsenic, iron, and total trihalomethanes are based on the Title 22 MCLS, which are equal to USEPA's MCLs. Therefore, they are not more stringent than Federal Requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the California Toxics Rule, the California Toxics Rule is the applicable standard pursuant to 40 C.F.R. 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 1, 2001. All designated beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the [Clean Water] Act" pursuant to 40 C.F.R. 131.21(c)(1). [The remaining water quality objectives (Basin Plan Amendments) implemented by this Order were subsequently approved by USEPA, and are applicable water quality standards pursuant to 40 C.F.R. 131.21(c)(2).] Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the Clean

Water Act and the applicable water quality standards for purposes of the Clean Water Act.

15. On August 2005, the discharger, during a meeting with Regional Board staff, presented economic information indicating that the cost of complying with the ammonia nitrogen and nitrate plus nitrite as nitrogen effluent limitations cost approximately \$16 million, for the nitrification denitrification (NDN) capital improvement project. However, the discharger has not submitted any other economic information regarding the cost of compliance with any other permit requirements.
16. ***Basis for Effluent Limits for 303(d) Listed Pollutants*** - For 303(d) listed pollutants, the Regional Board plans to develop and adopt Total Maximum Daily Loads (TMDLs) which will specify wasteload allocations (WLAs) for point sources and load allocations (LA) for non-point sources, as appropriate. Following the adoption of TMDLs by the Regional Board, NPDES permits will be issued, and where appropriate, reopened to include effluent limits consistent with the assumptions of the TMDL, based on applicable WLAs. In the absence of a TMDL, the permits will include water quality-based effluent limitations derived as provided in the Basin Plan, CTR, and SIP (if applicable). These effluent limits are based on criteria applied end-of-pipe due to no mixing zone or dilution credits allowed.
17. ***303(d) Listed Pollutants*** - On July 25, 2003, USEPA approved the State's most recent list of impaired waterbodies. The list (hereinafter referred to as the 303(d) list) was prepared in accordance with Section 303(d) of the Federal Clean Water Act to identify specific impaired waterbodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources.

The Burbank Western Channel, Los Angeles River, and its tributaries are on the 303(d) List. The following pollutants/stressors, from point and non-point sources, were identified as impacting the receiving waters:

Burbank Western Channel - Hydrologic Unit 405.21

- Algae, ammonia, cadmium, odors, scum/foam-unnatural, and trash.

Los Angeles River Reach 3 (Figueroa St. to Riverside Drive) Hydro. Unit 405.21:

- Ammonia, nutrients (algae), odors, and scum/foam-unnatural.

Los Angeles River - Reach 2 (Carson to Figueroa Street) Hydrologic Unit 405.15:

- Ammonia, coliform, lead, nutrients (algae), odors, oil, scum, and trash;

Los Angeles River - Reach 1 (Estuary to Carson Street) Hydrologic Unit 405.12:

- Total aluminum, ammonia, dissolved cadmium, dissolved copper, coliform, lead, nutrients (algae), pH, scum/foam-unnatural, and dissolved zinc; and,

Los Angeles River Estuary (Queensway Bay):

- Chlordane (sediment), DDT (sediment), Lead (sediment), PCBs (sediment), and zinc (sediment).

The Regional Board revised the 303(d) list in 2002 and submitted the draft to the State Board for approval. The State Board had scheduled the draft 303(d) list, dated October 15, 2002, for approval at two of its meetings, however the item was postponed to hold additional workshops and to allow more time for the public to submit comments. The draft 303(d) list dated October 15, 2002, was revised on January 13, 2003, based on comments received. The draft 303(d) list, dated January 13, 2003, was adopted by the State Board at its February 4, 2003 meeting. The adopted 303(d) list was approved by USEPA on July 25, 2003.

18. **Relevant Total Maximum Daily Loads (TMDLs).** A Total Maximum Daily Load (TMDL) is a determination of the amount of a pollutant, from point, nonpoint, and natural background sources, including a margin of safety, which may be discharged to a water quality-limited water body. Section 303(d) of the CWA established the TMDL process. The statutory requirements are codified at 40 CFR, Part 130.7. TMDLs must be developed for the pollutants of concern which impact the water quality of water bodies on the 303(d) list. According to the TMDL schedule, under the amended consent decree, *Heal the Bay, Santa Monica Bay Keeper, et al. v. Browner, et al.* (March 23, 1999), the trash, nitrogen, and metals TMDLs for the Los Angeles River must be completed by March 2001, March 2003, and March 2004, respectively. The coliform TMDL for Los Angeles Harbor is scheduled for completion by March 2006.

A. **Nitrogen Compounds TMDL.** On July 10, 2003, the Regional Board adopted Resolution No. 2003-009, *Amendment to the Basin Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River (Nitrogen Compounds TMDL)*. On November 19, 2003, the State Board approved the *Nitrogen Compounds TMDL*. However, on December 4, 2003, the Regional Board revised the Nitrogen Compound TMDL by adopting Resolution No. 2003-016, *Revision of Interim Effluent Limits for Ammonia in the Amendment to the Water Quality Control Plan for the Los Angeles Region to Include a TMDL for Nitrogen Compounds and Related Effects in the Los Angeles River*. Resolution No. 2003-016 only revised the portion of the Nitrogen Compounds TMDL containing interim limits for total ammonia as nitrogen, for the Glendale and Tillman WRPs. All other portions of the TMDL remained unchanged. The *Nitrogen Compounds TMDL* went into effect on March 23, 2004, when the Regional Board filed the Notice of Decision with the California Resources Agency.

B. **Trash TMDL.** On January 25, 2001, the Regional Board adopted Resolution No. 01-006. However, on September 19, 2001, the Regional Board reconsidered Resolution No. 01-006 and adopted Resolution No. 2001-013, *Amendment to the Basin Plan for the Los Angeles Region to Incorporate a TMDL for Trash in the Los Angeles River (Trash TMDL)*, which supercedes Resolution No. 01-006. On February 19, 2002, the State Board adopted Resolution No. 02-038, approving the Regional Board's Trash TMDL.

The TMDL subsequently was approved by the State Water Quality Control Board on February 19, 2002 and by OAL on July 16, 2002. Since the State Board and OAL failed to approve the TMDL in time to meet the relevant

federal consent decree, USEPA promulgated its own Trash TMDL. Upon approval of the Regional Board's TMDL by OAL, USEPA approved the Regional Board's LA River Trash TMDL on August 1, 2002, and deemed it to have superceded the TMDL promulgated by USEPA.

The City of Los Angeles and the County of Los Angeles both filed petitions and complaints in the Los Angeles Superior Court challenging the LA River Trash TMDL. Subsequent negotiations led to a settlement agreement, which became effective on September 23, 2003. The Court of Appeal rejected the claims litigated by the cities, but found that the Water Board did not adequately complete the environmental checklist. The Court therefore affirmed a writ of mandate issued by the trial court, which orders the Water Board to set aside and not implement the TMDL until it has been brought into compliance with CEQA.

On June 6, the Regional Board set aside the TMDL and Resolution No. 01-013 which established it, pursuant to the writ of mandate. On June 28, 2006, a CEQA scoping meeting was conducted. Regional Board staff revised the CEQA checklist in response to comments received; prepared a Basin Plan Amendment to incorporate the LA River Trash TMDL; and, have scheduled the item for Board adoption at the October 2006 public hearing.

- C. **Metal TMDL.** On June 2, 2005, the Regional Board adopted Resolution No. R05-006, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries (LA River Metals TMDL)*. The LA River Metals TMDL contains waste load allocations for copper, lead, cadmium and zinc. Reasonable Potential Analysis (RPA) showed exceedances of water quality objectives in receiving water and the pollutants were detected in the effluent for these metals. Therefore, numerical limitations have been prescribed for these metals in this permit. On October 20, 2005, the State Board approved the *LA River Metals TMDL* by adopting Resolution No. 2005-0077. On December 9, 2005 and December 22, 2005, respectively, OAL and USEPA approved the *LA River Metals TMDL*. It went into effect on January 11, 2006.

19. ***Mixing Zones, Water Effects Ratio (WER), and Dilution Credits.*** Mixing zones, dilution credits, WER, and attenuation factors are not authorized in this Order. Allowance of a mixing zone is in the Regional Board's discretion under Section 1.4.2 of the SIP and under the Basin Plan (Basin Plan Chapter 4, page 30). If the Discharger subsequently conducts appropriate mixing zone, WER, and dilution credit studies, the Regional Board can evaluate the propriety of granting a mixing zone or establishing dilution credits.

Translator study – In September 2004, the City of Burbank submitted, to the Regional Board, a draft workplan to conduct a Copper Translator Study, based on the 1996 USEPA Metals Translator Guidance. The intent of the City for developing a copper translator is to obtain a localized factor specifically for the Burbank Western Channel, rather than using the default factors in the CTR developed by USEPA. The approved translator would be used in accordance with SIP procedures

to develop a revised CTR-based copper final effluent limit. On November 18, 2004, Regional Board staff provided preliminary comments requesting: the addition of a mixing zone study, clarification of sampling protocols, and clarification of the sampling schedule; suggesting that the workplan be revising, and requesting that it be resubmitted. In December 2004, the City subsequently submitted a revised draft workplan for Regional Board approval. On August 28, 2006, Regional Board staff provided comments on the December 2004 Workplan including a request for an additional sampling station, an updated sampling schedule, and clarification on details pertaining to the mixing zone study. The City submitted a revised workplan on October 19, 2006. Once the Workplan is approved, sampling for the Copper Translator Study along the Burbank Western Channel will begin.

Water Effects Ratio – The City of Burbank, in conjunction with the City of Los Angeles, is pursuing two separate water effect ratio (WER) studies, one for copper and another for ammonia. Larry Walker Associates (LWA) has been hired by the cities to conduct both the LA River Copper WER Study and the LA River Ammonia WER, according to their respective approved workplans. Technical Advisory Committees (TACs) have been assembled to provide independent review of the proposed WERs. A memorandum dated June 20, 2006, written by LWA, addressed to the Copper WER TAC, presents the results of sampling conducted and recommends different WERs for various reaches of the LA River. LWA was recommending a 5.7 WER for the Burbank Western Channel. Both WER studies have yet to be approved by the Regional Board. Although the WER studies may not be finalized before the permit goes to the Board for renewal, this permit contains a reopener which allows the modification of final effluent limits, if at the conclusion of necessary studies conducted by the Discharger, the Regional Board determines that dilution credits, attenuation factors, water effect ratios, or metal translators are warranted.

Dilution and Attenuation Factors - On July 16, 2003, the State Board adopted Order No. WQO 2003-0009, directing Regional Board staff to work with CSDLAC, once data was provided, to determine whether dilution and attenuation are appropriate factors to consider in developing effluent limits to protect the GWR beneficial use, in the Whittier Narrows WRP NPDES permit. However, this does not apply to the Burbank WRP at this time, because the City of Burbank has not provided the necessary site-specific data or studies regarding the ground water basins in the San Fernando Valley and the Central Los Angeles Coastal Plain Groundwater Basin areas.

At this time, the Regional Board has concluded that mixing zones, WER, and dilution credits would be inappropriate to grant, in light of the following factors:

- A. The Burbank WRP discharges contributes the largest flow into the Burbank Western Wash, within the Los Angeles River watershed, in the vicinity of the discharge point where it overwhelms the receiving water most of the year providing very limited mixing and dilution;
- B. Even in the absence of the Burbank WRP discharge, the receiving water primarily consists of nuisance flows and other effluents, limiting its assimilative capacity;

- C. Several reaches of the Los Angeles River [including those subject to this Order] are 303(d) listed (i.e., impaired) for certain constituents;
 - D. Impaired waters do not have the capacity to assimilate pollutants of concern at concentrations greater than the applicable objective;
 - E. For the protection of the beneficial uses is listed on Finding 28;
 - F. Consistent with Antidegradation Policies;
 - G. Because a mixing zone study has not been conducted;
 - H. Because hydrologic models of the discharge and the receiving waters have not been conducted; and,
 - I. Because the final WER study reports have not been approved by the Board.
19. Specific effluent limitations for each constituent contained in this order were developed in accordance with the foregoing laws, regulations, plans, policies, and guidance. The specific methodology and example calculations are documented in the fact sheet prepared by Regional Board staff that accompanies this Order.

VIII. REASONABLE POTENTIAL ANALYSIS

- 1. As specified in 40 CFR, Part 122.44(d)(1)(i), permits are required to include limits for all pollutants "which the Director (defined as the Regional Administrator, State Director, or authorized representative in 40 CFR, Part 122.2) determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard."
 - A. Using the method described in the TSD, the Regional Board has conducted Reasonable Potential Analysis (RPA) for:
 - 1. Chronic Toxicity - RPA was conducted for Chronic Toxicity (Table R2 of this Fact Sheet) using the discharger's effluent data from their ROWD and annual self monitoring reports. Chronic Toxicity effluent data is summarized in Table D2 of this Fact Sheet. The RPA compares the effluent data with USEPA's 1 TUc water quality criteria. The Discharger's effluent demonstrated Chronic Toxicity during the last permit cycle. Based on this information, the Regional Board has determined that there is a reasonable potential that the discharge will cause toxicity in the receiving water and, consistent with SIP section 4, the Order contains a narrative effluent limitation for Chronic Toxicity. The circumstances warranting a numeric Chronic Toxicity effluent limitation were reviewed by the State Board in SWRCB/OCC Files A-1496 & A-1496(a) [Los Coyotes/Long Beach Petitions]. On September 16, 2003, the State Board adopted Order No. WQO 2003-0012, deferring the numeric chronic toxicity effluent limitation issue until a subsequent phase of the SIP is adopted, and replaced

the numeric chronic toxicity effluent limitation with a narrative effluent limitation for the time being.

2. Nitrate plus nitrite as nitrogen and other constituents with non-CTR based limits – RPA was conducted for Nitrate plus Nitrite as Nitrogen and other constituents (Table R2 of the accompanying Fact Sheet) using the Discharger's effluent data from their self monitoring reports. The effluent data for Non-priority pollutants is summarized in Table D2 of the accompanying Fact Sheet. The TSD RPA procedure compares the effluent data with the Basin Plan water quality objectives (WQOs) and other applicable criteria, and uses statistics to predict a receiving water concentration. Based on information submitted to the Regional Board by the Discharger, and using the TSD RPA procedure, the Regional Board has determined that there is a reasonable potential that the discharge will cause or contribute to an exceedance of the applicable criteria for: Nitrate plus Nitrite as Nitrogen, arsenic, bis(2-ethylhexyl)phthalate, total trihalomethanes and iron. Therefore, the Order contains numeric effluent limitations for Nitrate plus Nitrite as Nitrogen, arsenic, bis(2-ethylhexyl)phthalate, total trihalomethanes and iron.

- B. Using the method described in the SIP, the Regional Board has conducted RPA for priority pollutants using the discharger's effluent data contained in Table D1 and receiving water data contained in Table D3. The RPA compares the effluent data with water quality objectives in the Basin Plan and CTR.

1. **Reasonable Potential Determination** - The RPA (per the SIP) involves identifying the observed maximum pollutant concentration in the effluent (MEC) for each constituent based on the effluent concentration data. There are three tiers to determining reasonable potential. If any of the following three tiers is triggered, then reasonable potential exists:
 - a. For the first tier, the MEC is compared with the lowest applicable Water Quality Objective (WQO), which has been adjusted for pH, hardness and translator data, if appropriate. If the MEC is greater than the (adjusted) WQO, then there is reasonable potential for the constituent to cause or contribute to an excursion above the WQO and a WQBEL is required. However, if the pollutant was not detected in any of the effluent samples and all of the reported detection limits are greater than or equal to the WQO, proceed with Tier 2. The Regional Board exercised its discretion in identifying all available, valid, relevant, representative data and information in accordance with SIP Section 1.2 (page 5).

- b. For the second tier, the observed maximum ambient background concentration (B) for the pollutant is compared with the adjusted WQO. If B is greater than the adjusted WQO, and if the pollutant was present in the effluent, then a WQBEL is required, because the effluent has reasonable potential to contribute to an exceedance of the WQO. The Regional Board exercised its discretion in identifying all available, applicable ambient background data in accordance with SIP Section 1.4.3 (page 18).
- c. For the third tier, other information is used to determine RPA, such as the current CWA 303(d) List. Section 1.3 of the SIP describes the type of information that can be considered in Tier 3.

For all parameters that have reasonable potential to cause or contribute to an exceedance of a WQO/criteria, numeric WQBELs are required. Section 1.4, Step 5 of the SIP (Page 10 states that MDELs shall be used for POTWs in place of average weekly limitations. WQBELs are based on CTR, USEPA water quality criteria, and Basin Plan objectives (among which are the MCLs included by reference).

If the data are unavailable or insufficient to conduct the RPA for the pollutant, or if all reported detection limits of the pollutant in the effluent are greater than or equal to the WQO, the Regional Board shall require additional monitoring, in accordance with Section 1.3 of the SIP. Upon completion of the required monitoring, the Regional Board shall use the gathered data to conduct RPA and determine if new WQBELs are required.

Therefore these constituents require interim requirements. Section 2.4.5 of the SIP discusses how compliance will be determined in the case where the lowest detection level is higher than the WQ criteria. The Discharger should work with the laboratory to lower detection levels to meet applicable and reliable detection limits; follow procedures set forth in 40 CFR Part 136; and, report the status of their findings in the annual report. During the term of the permit, if and when monitoring with lowered detection limits shows any of the priority pollutants at levels exceeding the applicable WQOs, the Discharger will be required to initiate source identification and control for the particular pollutant. Appendix 4 of the SIP lists the minimum levels and laboratory techniques for each constituent.

A numerical limit has not been prescribed for a toxic constituent if it has been determined that it has no reasonable potential to cause or contribute to excursions of water quality standards. However, if the constituent had a limit in the previous permit, and if none of the Antibracksliding exceptions apply, then the limit will be retained. A narrative limit to comply with all water quality objectives is provided

in *Standard Provisions* for the priority pollutants, which have no available numeric criteria.

2. **RPA Data** - The RPA was based on effluent monitoring data for June 2003 through May 2006. Data collected prior to June 2003 was excluded from the data set, because it was not representative of the level of treatment provided by the upgraded treatment units at the Burbank WRP. However, since the priority pollutants were not sampled that frequently in the previous monitoring and reporting program, there was no priority pollutant data for June and July in 2003. Table R1 of the fact sheet summarizes the RPA, lists the constituents, and where available, the lowest, adjusted WQO, the MEC, the "Reasonable Potential" result, and the limits from the previous permit.

- a. **Metals Water Quality Objective** - For metals, the lowest applicable WQO was expressed as total recoverable, and where applicable, adjusted for hardness. A spreadsheet (Table R3) was used to calculate the total recoverable CTR criteria. Hardness values from samples collected in the receiving water upstream of the discharge point are typically averaged and used to determine the appropriate CTR WQO for those hardness-dependent metals. However, since the hardness upstream was much higher than both the effluent hardness and the hardness downstream of the discharge, the downstream hardness was used instead of the upstream hardness, in order to protect the downstream beneficial uses. The average hardness values at (R2) were used to determine the appropriate CTR WQO for hardness-dependent metals. Individual hardness values greater than 400 mg/L were capped at 400 prior to calculating the average hardness of 224 mg/L. This is consistent with the preamble to the CTR, contained in Federal Register Section E.f. *Hardness* (p.31692), 40 CFR Part 131.

- b. **Interim Monitoring Requirements** - In accordance with the SIP, the Regional Board may impose interim monitoring requirements upon the Discharger, so that the Discharger obtains adequate ambient, background water data for priority pollutants upstream of the discharge point as well as suitable effluent data. The Executive Officer directed the Discharger to begin an interim monitoring program for the duration of 18 months, beginning July 2001. The Discharger collected the eighteen required samples and reported the results quarterly to the Regional Board. The eighteen months worth of ambient (or receiving water) data were used in the RPA. However, since the effluent data was collected prior to the NDN upgrade, it was not representative of the current level of treatment provided by the Burbank WRP, and was not used in the RPA. After

additional information is gathered, Regional Board staff will conduct another RPA, at a future date, to determine if additional numeric limitations are necessary. Section 1.3, Step 8, of the SIP authorizes the Regional Board to use the gathered data to conduct RPA, as outlined in Steps 1 through 7, and determine if a water quality-based effluent limitation is required.

A reopener provision is included in this Order that allows the permit to be reopened to allow the inclusion of new numeric limitations for any constituent that exhibits reasonable potential to cause or contribute to exceedance of applicable water quality objectives.

- C. The numeric limitations contained in this Order are intended to protect and maintain existing and potential beneficial uses of the receiving waters. Environmental benefits provided by these limitations are reasonable and necessary.
 - D. Regional Board staff have determined that chromium VI, copper, mercury, selenium, zinc, dibromochloromethane, dichlorobromomethane, bis(2-ethylhexyl)phthalate, and lindane (gamma-BHC) showed the potential to exceed respective CTR objectives, and, therefore, require CTR-based effluent limitations. Regional Board staff have determined that the following pollutants showed the potential to exceed their respective Basin Plan WQO, and, therefore, require Basin Plan-based effluent limitations: arsenic, bis(2-ethylhexyl)phthalate, iron, and total trihalomethanes. The following have effluent limitations based on the waste load allocations prescribed in the *LA River Metals TMDL*: cadmium and lead.
2. This Order is consistent with State and Federal antidegradation policies in that it does not authorize a change or relaxation in the manner or level of treatment. As a result, the quality of the discharge is expected to remain the same consistent with antidegradation policies. Although the quantity of wastewater is expected to increase, the City had an Environmental Impact Report prepared to identify and address any potential impacts. The accompanying monitoring and reporting program requires continued data collection and if monitoring data show a reasonable potential for a constituent to cause or contribute to an exceedance of water quality standards, the permit will be reopened to incorporate appropriate WQBELs. Such an approach ensures that the discharge will adequately protect water quality standards for potential and existing uses and conforms with antidegradation policies and antibacksliding provisions.

IX. PROPOSED EFFLUENT LIMITATIONS

1. Numeric toxic constituent limitations are based on the Basin Plan the narrative water quality objective for toxic constituents, "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life"; on the CTR; and, the interpretation of the Basin Plan narrative criteria using USEPA's 304(a) nationally recommended water quality criteria. For toxic constituents that have no

reasonable potential to cause or contribute to excursions of water quality objectives, no numerical limitations are prescribed.

2. Pursuant to 40 CFR 122.45(d)(2), for a POTWs continuous discharges, all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall, unless impracticable, be stated as average weekly and average monthly discharge limitations for POTWs. It is impracticable to only include average weekly and average monthly effluent limitations in the permit, because a single daily discharge of a pollutant, in excess amounts, can cause violations of water quality objectives. The effects of pollutants on aquatic organisms are often rapid. For many pollutants, an average weekly or average monthly effluent limitation alone is not sufficiently protective of beneficial uses. As a result, maximum daily effluent limitations, as referenced in 40 CFR 122.45(d)(1), are included in the permit.
3. Furthermore, Section 1.4 of the SIP requires the step-by-step procedure to "adjust" or convert CTR numeric criteria into Average Monthly Effluent Limitations (AMELs) and Maximum Daily Effluent Limitations (MDELs), for toxics.
 - A. Step 3 of Section 1.4 of the SIP (page 8) lists the statistical equations that adjust CTR criteria for effluent variability.
 - B. Step 5 of Section 1.4 of the SIP (page 10) lists the statistical equations that adjust CTR criteria for averaging periods and exceedance frequencies of the criteria/ objectives. This section also reads, "For this method only, maximum daily effluent limitations shall be used for publicly-owned treatment works (POTWs) in place of average weekly limitations.
4. Table R1 is the spreadsheet that staff used to calculate the AMELs and MDELs for priority pollutants.
5. 40 CFR section 122.45(f)(1) requires that except under certain conditions, all permit limits, standards, or prohibitions be expressed in terms of mass units. 40 CFR section 122.45(f)(2) allows the permit writer, at its discretion, to express limits in additional units (e.g., concentration units). The regulations mandate that, where limits are expressed in more than one unit, the permittee must comply with both.
6. Generally, mass-based limits ensure that proper treatment, and not dilution, is employed to comply with the final effluent concentration limits. Concentration-based effluent limits, on the other hand, discourage the reduction in treatment efficiency during low-flow periods and require proper operation of the treatment units at all times. In the absence of concentration-based effluent limits, a permittee would be able to increase its effluent concentration (i.e., reduce its level of treatment) during low-flow periods and still meet its mass-based limits. To account for this, this permit includes mass and concentration limits for some constituents.
 - A. Effluent Limitations:
 1. Limits for Conventional and non-conventional pollutants:

Constituent	Units	Discharge Limitations		
		Monthly Ave. ^[1]	Weekly Ave. ^[2]	Daily Max. ^[2]
Settleable solids ^[5]	ml/L	0.1	--	0.3
Suspended solids ^[4]	mg/L	15	40	45
	lbs/day ^[3]	1,100	3,000	3,400
Oil and grease ^[6]	mg/L	10	--	15
	lbs/day ^[3]	750	--	1,100
BOD ₅ 20°C ^[4]	mg/L	20	30	45
	lbs/day ^[3]	1,500	2,300	3,400
Total residual chlorine ^[7]	mg/L	--	--	0.1 ^[8]
Total dissolved solids ^[9]	mg/L	950	--	--
	lbs/day ^[3]	71,000	--	--
Chloride ^[9]	mg/L	190	--	--
	lbs/day ^[3]	14,000	--	--
Sulfate ^[9]	mg/L	300	--	--
	lbs/day ^[3]	23,000	--	--
MBAS ^[11]	mg/L	0.5	--	--
	lbs/day ^[3]	40	--	--
Total inorganic nitrogen ^[12] (nitrate + nitrite as nitrogen)	mg/L	7.2 ^[15]	--	--
Nitrate (as N)	mg/L	7.2 ^[15]	--	--
Nitrite (as N)	mg/L	0.9 ^[15]	--	--
Ammonia Nitrogen (NH ₃ -N) ^[13]	mg/L	2.1 ^[15]	--	9.1 ^[15]
Iron	µg/L	300	--	--
	lbs/day ^[3]	22	--	--

[1] The daily maximum effluent concentration limit shall apply to both flow weighted 24-hour composite samples and grab samples, as specified in the Monitoring and Reporting Program (Attachment T).

[2] Average Monthly Discharge Limitation means the highest allowable average of daily discharge over a calendar month, calculated as the sum of all daily discharges measures during that month divided by the number of days on which monitoring was performed.

Average Weekly Discharge Limitation means the highest allowable average of daily discharge over a calendar week, calculated as the sum of all daily discharges measures during that week divided by the number of days on which monitoring was performed.

[3] The mass emission rates are based on the existing plant design flow rate of 9 mgd, and are calculated as follows: Flow(MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day. However, the design capacity will incrementally increase to 12.5 MGD, as the phased plant upgrade approaches completion. The mass-based effluent limitation will accordingly be modified upon certification and approval of increased treatment plant capacity. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.

[4] See detailed information on suspended solids in the following Section IX.6.B.a.

[5] See detailed information on settleable solids in the following Section IX.6.B.b.

[6] See detailed information on oil and grease in the following Section IX.6.B.c.

Footnotes (continued)

- [7] See detailed information on total residual chlorine in the following Section IX.6.B.d.
- [8] Determination of compliance with the final effluent limitation of 0.10 mg/L for total residual chlorine will be based solely on end of pipe grab samples.
- [9] See detailed information on TDS, chloride, and sulfate in the following Section IX.6.B.f.
- [10] See detailed information on iron in the following Section IX.6.B.g.
- [11] See detailed information on MBAS in the following Section IX.6.B.h.
- [12] See detailed information on nitrate plus nitrite as nitrogen in the following Section IX.6.B.i.
- [13] See detailed information on ammonia nitrogen in the following Section IX.6.B.j.
- [14] See detailed information on Manganese in the following Section IX.6.B.k.
- [15] This is the waste load allocation (WLA), according to the *Nitrogen Compounds TMDL* Resolution No. 2003-009, adopted by the Regional Board on July 10, 2003. The WLA serves as the effluent limitation for the discharge. It became effective on March 23, 2004, after the USEPA approved the *Nitrogen Compounds TMDL*, and after the Regional Board filed the Notice of Decision with the California Resources Agency. Note that the interim effluent limitations contained in the *Nitrogen Compounds TMDL* would not apply to the City's discharge, because construction and start-up operations of the NDN facilities have been completed.

B. Basis for Conventional and nonconventional pollutants:

a. Biochemical Oxygen Demand (BOD) and Suspended solids

Biochemical oxygen demand (BOD) is a measure of the quality of the organic matter in the water and, therefore, the water's potential for becoming depleted in dissolved oxygen. As organic degradation takes place, bacteria and other decomposers use the oxygen in the water for respiration. Unless there is a steady re-supply of oxygen to the system, the water will quickly become depleted of oxygen. Adequate dissolved oxygen levels are required to support aquatic life. Depressions of dissolved oxygen can lead to anaerobic conditions resulting in odors, or, in extreme cases, in fish kills. It is infeasible to only have weekly average and monthly average limits for BOD because high concentrations discharged in one day may rapidly deplete dissolved oxygen levels in the receiving waters, may cause acute effects on aquatic life, or may cause unpleasant odors. Daily maximum limits are necessary to protect against such acute effects.

Suspended solids make water more turbid. Turbid water interferes with recreational use and aesthetic enjoyment of water. Turbid waters can be dangerous for swimming because of the possibility of unseen submerged hazards and the difficulty in locating swimmers in danger of drowning. The less turbid the water, the more desirable it becomes for swimming and other water recreational sports such as fishing. It is infeasible to only have weekly average and monthly average limits for Suspended solids because high concentrations discharged in one day may interfere with the fishable/swimmable uses of the receiving waters.

40 CFR Part 133 describes the minimum level of effluent quality attainable by secondary treatment, for BOD and suspended solids, as:

- the monthly average shall not exceed 30 mg/L and
- the 7-day average shall not exceed 45 mg/L.

Burbank WRP provides tertiary treatment, as such, the limits in the permit are more stringent than secondary treatment requirements. The Plant achieves solids removal that are better than secondary-treated wastewater by adding a coagulant to enhance the precipitation of solids, and by filtering the effluent. Ferric chloride or Alum have been added in the past to enhance treatment.

The monthly average, the 7-day average, and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. Those limits were all included in the previous permits (Order Nos. 96-050 and 98-052) and the Burbank WRP has been able to meet all three limits (monthly average, the 7-day average, and the daily maximum), for both BOD and suspended solids.

In addition to having mass-based and concentration-based effluent limitations for BOD and suspended solids, the Burbank WRP also has a percent removal requirement for these two constituents. In accordance with 40 CFR section 133.102(a)(3) and 133.102(b)(3), the 30-day average percent removal shall not be less than 85 percent. Percent removal is defined as a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent pollutant concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

b. Settleable solids

Excessive deposition of sediments can destroy spawning habitat, blanket benthic (bottom dwelling) organisms, and abrade the gills of larval fish. The limits for settleable solids are based on the Basin Plan (page 3-16) narrative, "Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses." The numeric limits are empirically based on results obtained from the settleable solids 1-hour test, using an Imhoff cone.

It is impracticable to use a 7-day average limitation, because short-term spikes of settleable solid levels that would be permissible under a 7-day average scheme would not be adequately protective of all beneficial uses. The monthly average and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. The monthly average and daily maximum limits were both included in the previous permit (Order Nos. 96-050 and 98-052) and the Burbank WRP has been able to meet both limits. The Settleable solids limit was not one of the litigated constituents.

c. Oil and grease

Oil and grease are not readily soluble in water and form a film on the water surface. Oily films can coat birds and aquatic organisms, impacting respiration and thermal regulation, and causing death. Oil and grease can also cause nuisance conditions (odors and taste), are aesthetically unpleasant, and can restrict a wide variety of beneficial uses. The limits for oil and grease are based on the Basin Plan (page 3-11) narrative, "Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses."

The numeric limits are empirically based on concentrations at which an oily sheen becomes visible in water. It is impracticable to use a 7-day average limitation, because spikes that occur under a 7-day average scheme could cause a visible oil sheen. A 7-day average scheme would not be sufficiently protective of beneficial uses. The monthly average and the daily maximum limits cannot be removed because none of the antibacksliding exceptions apply. Both limits were included in the previous permits (Order Nos. 96-050 and 98-052) and the Burbank WRP has been able to meet both limits. The Oil and grease limit was not one of the litigated constituents.

d. Residual chlorine

Disinfection of wastewaters with chlorine produces a chlorine residual. Chlorine and its reaction products are toxic to aquatic life. The limit for residual chlorine is based on the Basin Plan (page 3-9) narrative, "Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L and shall not persist in receiving waters at any concentration that causes impairment of beneficial uses."

It is impracticable to use a 7-day average or a 30-day average limitation, because it is not as protective as of beneficial uses as a daily maximum limitation is. Chlorine is very toxic to aquatic life and short term exposures of chlorine may cause fish kills. Daily maximum limits are necessary to protect against such acute effects on aquatic life.

e. Fluoride

The existing permit effluent limitation of 2.0 mg/l for fluoride was developed based on the Basin Plan incorporation of Title 22, *Drinking*

Water Standards, by reference, for the protection of GWR. However, the fluoride limit was removed because one of the antibacksliding exceptions apply. New monitoring information and the TSD methodology was used to determine that there was no reasonable potential for the treated effluent to exceed the Basin Plan WQO.

f. *Total Dissolved Solids, Sulfate, Chloride, and Boron*

The limits for total dissolved solids, sulfate, and boron are based on the water quality objectives found in Basin Plan Table 3-8 (page 3-13), for the Los Angeles River watershed, above Figueroa Street. This table lists the applicable WQOs for various reaches of different surface waters. Burbank Western Channel is tributary to the Los Angeles River above Figueroa Street, therefore the WQO for TDS is 950 mg/L and the WQO for Sulfate is 300 mg/L. There is no Boron WQO for that reach of the Los Angeles River. The Chloride limit is no longer 150 mg/L, but 190 mg/L, which resulted from Regional Board Resolution No. 97-02, *Amendment to the Water Quality Control Plan to incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters*. Resolution 97-02 was adopted by Regional Board on January 27, 1997; approved by SWRCB (Resolution 97-94); and, approved by OAL on January 8, 1998; and served to revise the chloride water quality objective in the Los Angeles River and other surface waters. It is practicable to express these limits as monthly averages, since they are not expected to cause acute effects on beneficial uses.

g. *Iron*

The existing permit effluent limitation of 300 mg/l for iron was developed based on the USEPA document, *Quality Criteria for Water 1986* [EPA 440/5-86-001, May 1, 1986], also referred to as the *Gold Book*, for the protection of GWR beneficial use. 300 µg/L is the secondary MCL for iron, however iron is not a priority pollutant. The previous permits (Order Nos. 96-050 and 98-052) included a final effluent daily maximum limitation for iron. The iron limit in Order No. 98-052 was thrown out in court, as a result of litigation brought forth by the City. However, the iron limit in Order No. 96-050 was not challenged and was not thrown out in court. Using the effluent monitoring information and the TSD methodology, the discharge currently has reasonable potential to exceed the Gold Book criteria; the secondary Federal MCL; and, the secondary California MCL for iron, even after all of the plant upgrades that have been made. The iron limit was not deleted because none of the antibacksliding exceptions apply. The limit was expressed as a monthly average rather than a daily maximum, because it was assumed that the groundwater basins have assimilative capacity for iron. Regional Board staff had proposed to move the point of compliance from surface water to groundwater, for the protection of the MUN beneficial use in the groundwater basins. However, the City opposed the groundwater receiving water limits and did not want to be held accountable for the quality of the groundwater in the basin, because there are other sources infiltrating the groundwater. A WQBEL is now proposed which has to be met at the end of pipe, for protection of the GWR beneficial use in the

surface water. The City can control the manner in which they operate the Burbank WRP and ultimately they control the water quality discharged through their Discharge Point No. 002. Since the discharge has reasonable potential to cause or contribute to an exceedance, a final effluent limit is needed.

h. Methylene Blue Activated Substances (MBAS)

The MBAS procedure tests for the presence of anionic surfactants (detergents) in surface and ground waters. Surfactants disturb the water surface tension, which affects insects and can affect gills in aquatic life. The MBAS can also impart an unpleasant soapy taste to water, as well as cause scum and foaming in waters, which impact the aesthetic quality of both surface and ground waters.

Given the nature of the facility (a POTW) which accepts domestic wastewater into the sewer system and treatment plant, and the characteristics of the wastes discharged, the discharge has reasonable potential to exceed both the numeric MBAS water quality objective (WQO) and the narrative WQO for prohibition of floating material such as foams and scums. Therefore an effluent limitation is required.

In past self-monitoring reports submitted to the Regional Board under MRP requirements, the Discharger has reported MBAS concentrations in the effluent in excess of 0.5 mg/L. The 0.5 mg/L concentration (which has been determined to be protective of beneficial uses and the aesthetic quality of waters), is based on the Department of Health Services' secondary drinking water standard, and on the Basin Plan WQO (p.3-11) which reads, "Waters shall not have MBAS concentrations greater than 0.5 mg/L in waters designated MUN." While the wastewater from this POTW is not directly discharged into a MUN designated surface water body, it will percolate into unlined reaches of the Los Angeles River [via ground water recharge designated beneficial use (GWR)] to ground water designated for MUN beneficial use. In addition, the Basin Plan states that "Ground water shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses." Therefore, the secondary MCL should be the MBAS limit for this discharge to protect ground water recharge and the MUN use of the underlying ground water, while also protecting surface waters from exhibiting scum or foaming.

Since the Basin Plan objective is based on a secondary drinking water standard, it is practicable to have a monthly average limitation in the permit.

i. Total inorganic nitrogen ($\text{NO}_2 + \text{NO}_3$ as N)

Total inorganic nitrogen is the sum of Nitrate-nitrogen and Nitrite-nitrogen. Nitrogen is considered a nutrient. High nitrate levels in drinking water can cause health problems in humans. Infants are particularly sensitive and can develop methemoglobinemia (blue-baby syndrome). The nitrite-N limit of 1 mg/L is based on the Basin Plan WQO located on page 3-11.

1. **Algae.** Several reaches of the Los Angeles River are 303(d) listed for algae. Excessive growth of algae and/or other aquatic plants can degrade water quality. Algal blooms sometimes occur naturally, but they are often the result of excess nutrients (i.e., nitrogen, phosphorus) from waste discharges or nonpoint sources. These algal blooms can lead to problems with tastes, odors, color, and increased turbidity and can depress the dissolved oxygen content of the water, leading to fish kills. Floating algal scum and algal mats are also an aesthetically unpleasant nuisance.

The 303(d) listing for algae is being addressed by applying the narrative WQO for biostimulatory substances, "Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses," and other relevant information to arrive at a mass based-limit intended to be protective of the beneficial uses, pursuant to 40 CFR 122.44(d).

2. **Concentration-based limit.** The effluent limit for total inorganic nitrogen ($\text{NO}_2\text{-N} + \text{NO}_3\text{-N}$) of 7.2 mg/L is based on The Nutrient TMDL Waste Load Allocation, and supercedes the Basin Plan-based effluent limitation of 8 mg/L (found in Basin Plan Table 3-8, page 3-13, for the Los Angeles River watershed above Figueroa Street), because the TMDL is in effect. However, if the LA River is restored and the stream gets de-listed for nitrate plus nitrite nitrogen, then the Basin Plan-based effluent limit would apply.
3. **Mass based limit.** There is no mass emission rate for $\text{NO}_2\text{-N} + \text{NO}_3\text{-N}$ because the TMDL did not specify a mass-based WLA.

j. Ammonia-nitrogen

1. Ammonia is a pollutant routinely found in the wastewater effluent of POTWs, in landfill-leachate, as well as in run-off from agricultural fields where commercial fertilizers and animal manure are applied. Ammonia exists in two forms – un-ionized ammonia (NH_3) and the ammonium ion (NH_4^+). They are both toxic, but the neutral, un-ionized ammonia species (NH_3) is much more toxic, because it is able to diffuse across the epithelial membranes of aquatic organisms much more readily than the charged ammonium ion. The form of ammonia is primarily a function of pH, but it is also

affected by temperature and other factors. Additional impacts can also occur as the oxidation of ammonia lowers the dissolved oxygen content of the water, further stressing aquatic organisms. Oxidation of ammonia to nitrate may lead to groundwater impacts in areas of recharge. [There is groundwater recharge in these reaches]. Ammonia also combines with chlorine (often both are present in POTW treated effluent discharges) to form chloramines – persistent toxic compounds that extend the effects of ammonia and chlorine downstream.

2. Ammonia is 303(d) listed in the Los Angeles River. Since ammonia has a WLA in the LA River Nutrient TMDL, a TMDL-based effluent limitation for total ammonia as nitrogen is required in order to implement the provisions of the TMDL and to try and restore the water quality in that section of the receiving water.
3. The 1994 Basin Plan contained water quality objectives for ammonia to protect aquatic life, in Tables 3-1 through Tables 3-4. However, those ammonia objectives were revised on April 25, 2002, by the Regional Board, with the adoption of Resolution No. 2002-011, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Ammonia Objectives for Inland Surface Waters (including enclosed bays, estuaries and wetlands) with Beneficial Use designations for protection of Aquatic Life*. Resolution No. 2002-011 was approved by the State Board, the Office of Administrative Law, and USEPA on April 30, 2003, June 5, 2003, and June 19, 2003, respectively, and is now in effect. The final effluent limitations for ammonia prescribed in this Order are based on the LA River Nutrient TMDL. However, if the LA River is restored and the stream gets de-listed for ammonia, then the permit would be re-opened to include Basin Plan-based effluent limits for ammonia. (The revised Ammonia Tables would then apply.)

k. Manganese

The existing permit effluent limitation of 0.05 mg/L (or 50 µg/L) for manganese was developed based on the USEPA document, *Quality Criteria for Water 1986* [EPA 440/5-86-001, May 1, 1986], also referred to as the *Gold Book*, for the protection of GWR beneficial use. The 50 µg/L criteria was originally contained in USEPA's *Red Book*, which preceeded the *Gold Book*. 50 µg/L is also the secondary MCL for manganese. The Manganese criteria is not based on toxic effects, but is intended to minimize objectionable qualities such as laundry stains and objectionable tastes in beverages. Manganese is not on USEPA's list of priority pollutants. The previous permits (Order Nos. 96-050 and 98-052) included a final effluent limitation for manganese, expressed as a daily maximum. The limit was deleted because one of the antibacksliding exceptions applies. New effluent monitoring information and the TSD methodology was used to determine that there was no reasonable potential to exceed neither the Gold Book criteria nor the secondary MCL for manganese.

I. Coliform/Bacteria

Total and fecal coliform bacteria are used to indicate the likelihood of pathogenic bacteria in surface waters. Given the nature of the facility, a wastewater treatment plant, pathogens are likely to be present in the effluent in cases where the disinfection process is not operating adequately. As such, the permit contains the following:

1. Effluent Limitations:

- a. The 7 day median number of coliform organisms at some point in the treatment process must not exceed 2.2 Most Probable Number (MPN) per 100 milliliters, and
- b. The number of coliform organisms must not exceed 23 MPN per 100 milliliters in more than one sample within any 30-day period.

These disinfection-based effluent limitations for coliform are for human health protection and are consistent with requirements established by the Department of Health Services. These limits for coliform must be met at the point of the treatment train immediately following disinfection, as a measure of the effectiveness of the disinfection process.

2. Receiving Water Limitation

a. Geometric Mean Limits

- * E.coli density shall not exceed 126/100 mL.
- * Fecal coliform density shall not exceed 200/100 mL.

b. Single Sample Limits

- * E.coli density shall not exceed 235/100 mL.
- * Fecal coliform density shall not exceed 400/100 mL.

These receiving water limitations are based on Resolution No. 01-018, Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Bacteria Objectives for Water Bodies Designated for Water Contact Recreation, adopted by the Regional Board on October 25, 2001. The Resolution was approved by State Board, OAL, and USEPA, on July 18, 2002, September 19, 2002, and September 25, 2002, respectively.

m. pH

The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. While the pH of "pure" water at 25°C is 7.0,

the pH of natural waters is usually slightly basic due to the solubility of carbon dioxide from the atmosphere. Minor changes from natural conditions can harm aquatic life. The effluent limitation for pH which reads, "the wastes discharged shall at all times be within the range of 6.5 to 8.5," is taken from the Basin Plan (page 3-15) which reads "the pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharge."

n. Turbidity

Turbidity is an expression of the optical property that causes light to be scattered in water due to particulate matter such as clay, silt, organic matter, and microscopic organisms. Turbidity can result in a variety of water quality impairments. The effluent limitation for turbidity which reads, "For the protection of the water contact recreation beneficial use, the wastes discharged to water courses shall have received adequate treatment, so that the turbidity of the wastewater does not exceed: (a) a daily average of 2 Nephelometric turbidity units (NTUs); and (b) 5 NTUs more than 5 percent of the time (72 minutes) during any 24 hour period," is based on the Basin Plan (page 3-17).

o. Radioactivity

Radioactive substances are generally present in natural waters in extremely low concentrations. Mining or industrial activities increase the amount of radioactive substances in waters to levels that are harmful to aquatic life, wildlife, or humans. Section 301 (f) of the CWA contains the following statement with respect to effluent limitations for radioactive substances: "Notwithstanding any other provisions of this Act it shall be unlawful to discharge any radiological, chemical, or biological warfare agent, any high-level radioactive waste, or any medical waste, into the navigable waters." Chapter 5.5 of the Water Code contains a similar prohibition under Section 13375, which reads as follows: "The discharge of any radiological, chemical, or biological warfare agent into the waters of the state is hereby prohibited." However, rather than give a hard and fast absolute prohibition on radioactive substances, Regional Board staff have set the following effluent limit for radioactivity: "Radioactivity of the wastes discharged shall not exceed the limits specified in Title 22, Chapter 15, Article 5, Section 64443, of the California Code of Regulations, or subsequent revisions." The limit is based on the Basin Plan incorporation of Title 22, *Drinking Water Standards*, by reference, to protect beneficial uses. Therefore, the accompanying Order will retain the limit for radioactivity.

p. Temperature

USEPA document, *Quality Criteria for Water 1986* [EPA 440/5-86-001, May 1, 1986], also referred to as the *Gold Book*, discusses temperature and its effect on beneficial uses, such as recreation and aquatic life.

- The Federal Water Pollution Control Administration in 1967 called temperature "a catalyst, a depressant, an activator, a restrictor, a stimulator, a controller, a killer, and one of the most important water quality characteristics to life in water." The suitability of water for total

body immersion is greatly affected by temperature. Depending on the amount of activity by the swimmer, comfortable temperatures range from 20°C to 30°C (68 °F to 86 °F).

- Temperature also affects the self-purification phenomenon in water bodies and therefore the aesthetic and sanitary qualities that exist. Increased temperatures accelerate the biodegradation of organic material both in the overlying water and in bottom deposits which makes increased demands on the dissolved oxygen resources of a given system. The typical situation is exacerbated by the fact that oxygen becomes less soluble as water temperature increases. Thus, greater demands are exerted on an increasingly scarce resource which may lead to total oxygen depletion and obnoxious septic conditions. Increased temperature may increase the odor of water because of the increased volatility of odor-causing compounds. Odor problems associated with plankton may also be aggravated.
- Temperature changes in water bodies can alter the existing aquatic community. Coutant (1972) has reviewed the effects of temperature on aquatic life reproduction and development. Reproductive elements are noted as perhaps the most thermally restricted of all life phases, assuming other factors are at or near optimum levels. Natural short-term temperature fluctuations appear to cause reduced reproduction of fish and invertebrates.

The Basin Plan lists temperature requirements for the receiving waters. Based on the requirements of the Basin Plan and a white paper developed by Regional Water Board staff entitled *Temperature and Dissolved Oxygen Impacts on Biota in Tidal Estuaries and Enclosed Bays in the Los Angeles Region*, a maximum effluent temperature limitation of 86 °F is included in the Order. The white paper evaluated the optimum temperatures for steelhead, topsmelt, ghost shrimp, brown rock crab, jackknife clam, and blue mussel. The new temperature effluent limitation is reflective of new information available that indicates that the 100°F temperature is not protective of aquatic organisms. A survey was completed for several kinds of fish and the 86°F temperature was found to be protective. It is impracticable to use a 7-day average or a 30-day average limitation for temperature, because it is not as protective as of beneficial uses as a daily maximum limitation is. A daily maximum limit is necessary to protect aquatic life and is consistent with the fishable/swimmable goals of the CWA.

C. Toxicity.

Ambient monitoring data indicates that the background concentration in the Burbank Western Wash and in the lower Los Angeles River is toxic to aquatic organisms, and therefore exceeds water quality standards. Final effluent water quality data, contained in the Discharger's monitoring reports, also shows that chronic toxicity in the effluent has exceeded 1TUc (EPA WQO) several times. Therefore, pursuant to the TSD, reasonable potential exists for toxicity. As such, the permit should contain a numeric effluent limitation

for toxicity.

The following support the inclusion of toxicity numeric effluent limitations for chronic toxicity:

- a. 40 CFR 122.2 (Definition of Effluent Limitation);
- b. 40 CFR 122.44(d)(v) – limits on whole effluent toxicity are necessary when chemical-specific limits are not sufficient to attain and maintain applicable numeric or narrative water quality standards;
- c. 40 CFR 122.44(d)(vi)(A) – where a State has not developed a water quality criterion for a specific pollutant that is present in the effluent and has reasonable potential, the permitting authority can establish effluent limits using numeric water quality criterion;
- d. Basin Plan objectives and implementation provisions for toxicity;
- e. Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final May 31, 1996;
- f. Whole Effluent Toxicity (WET) Control Policy July 1994; and,
- g. Technical Support Document (several chapters and Appendix B).

However, the circumstances warranting a numeric chronic toxicity effluent limitation when there is reasonable potential were reviewed by the State Water Resources Control Board (State Board) in SWRCB/OCC Files A-1496 & A-1496(a) [Los Coyotes/Long Beach Petitions]. On September 17, 2003, at a public hearing, the State Board decided to defer the issue of numeric chronic toxicity effluent limitations until a subsequent version of the SIP is adopted. In the mean time, the State Board replaced the numeric chronic toxicity limit with a narrative effluent limitation and a 1 TUc trigger, in the Long Beach and Los Coyotes WRP NPDES permits. This permit contains a similar chronic toxicity effluent limitation. This Order also contains a reopener to allow the Regional Board to modify the permit, if necessary, consistent with any new policy, law, or regulation.

Acute Toxicity Limitation:

The Dischargers may test for Acute toxicity by using USEPA's *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, October 2002 (EPA-821-R-02-012). Acute toxicity provisions in the accompanying Order are derived from the Basin Plan's toxicity standards (Basin Plan 3-16 and 3-17). The provisions require the Discharger to accelerate acute toxicity monitoring and take further actions to identify the source of toxicity and to reduce acute toxicity.

Chronic Toxicity Limitation and Requirements:

Chronic toxicity provisions in the accompanying Order are derived from the Basin Plan's toxicity standards (Basin Plan 3-16 and 3-17). The provisions require the Discharger to accelerate chronic toxicity monitoring and take further actions to identify the source of toxicity and to reduce chronic toxicity. The monthly median trigger of 1.0 TU_c for chronic toxicity is based on *USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity (WET) Programs* Final May 31, 1996 (Chapter 2 – Developing WET Permitting Conditions, page 2-8). In cases where effluent receives no dilution or where mixing zones are not allowed, the 1.0 TU_c chronic criterion should be expressed as a monthly median. The “median” is defined as the middle value in a distribution, above which and below which lie an equal number of values. For example, if the results of the WET testing for a month were 1.5, 1.0, and 1.0 TU_c, the median would be 1.0 TU_c.

The *USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity (WET) Programs* Final May 31, 1996 (Chapter 2 – Developing WET Permitting Conditions, page 2-8) recommends two alternatives: using 2.0 TU_c as the maximum daily limit; or using a statistical approach to develop a maximum daily effluent limitation.

- D. Final Limits for priority pollutants discharged through Discharge Serial No. 002, to the Burbank Western Wash, tributary to the Los Angeles River:

CTR # ^[1]	Constituent	Units	Discharge Limitations	
			Monthly Average	Daily Maximum
	Arsenic	µg/L	10	--
		lbs/day ^[4]	0.75	--
4	Cadmium ^[2]	µg/L	4.4 ^[6, 8]	5.8 ^[6, 8]
		lbs/day ^[3]	0.33 ^[6, 8 & 9]	0.44 ^[6, 8 & 9]
5b	Chromium VI ^[2]	µg/L	9.7 ^{[a], [5]}	16 ^{[a], [5]}
		lbs/day ^[4]	0.73 ^[6]	1.2 ^[5]
6	Copper ^[2]	µg/L	16 ^{[a], [5]}	30 ^{[a], [5]}
		lbs/day ^[4]	1.2 ^[5]	2.6 ^[5]
7	Lead ^[2]	µg/L	8 ^[6, 7, 8]	13 ^[6, 7, 8]
		lbs/day ^[3]	0.6 ^[6, 7, 8 & 9]	0.98 ^[6, 7, 8 & 9]
8	Mercury ^[2]	µg/L	0.051 ^{[4 & 5], [b]}	0.10 ^{[4 & 5], [b]}
		lbs/day ^[3]	0.004 ^{[4 & 5], [b]}	0.008 ^{[4 & 5], [b]}
10	Selenium ^[2]	µg/L	4.2 ^{[a], [5]}	7.8 ^{[a], [5]}
		lbs/day ^[3]	0.32 ^[5]	0.59 ^[5]
13	Zinc ^[2]	µg/L	178 ^{[a], [5]}	236 ^{[a], [5]}
		lbs/day ^[3]	13 ^[5]	18 ^[5]
23	Dibromochloromethane	µg/L	34 ^{[5], [b]}	45 ^{[5], [b]}
		lbs/day ^[3]	2.6 ^[5]	3.4 ^[5]
27	Dichlorobromomethane	µg/L	46 ^{[5], [b]}	61 ^{[5], [b]}
		lbs/day ^[3]	3.5 ^[5]	4.6 ^[5]
68	Bis(2-Ethylhexyl)phthalate	µg/L	4 ^{[b], [5]}	17 ^{[b], [5]}
		lbs/day ^[3]	0.3 ^[5]	1.3 ^[5]
105	Lindane (Gamma-BHC)	µg/L	0.063 ^{[4 & 5], [b]}	0.13 ^{[4 & 5], [b]}

CTR # ^[1]	Constituent	Units	Discharge Limitations	
			Monthly Average	Daily Maximum
		lbs/day ^[3]	0.0047 ^[6]	0.0098 ^[6]
	Total trihalomethanes ^[10]	µg/L	80 ^[11]	--
		lbs/day ^[3]	6 ^[11]	--

- [1] This number corresponds to the compound number found in Table 1 of CTR. It is simply the order in which the 126 priority pollutants were listed 40 CFR part 131.38 (b)(1).
- [2] Concentration expressed as total recoverable.
- [3] The mass emission rates are based on the existing plant design flow rate of 9 mgd, and are calculated as follows: Flow(MGD) x Concentration (mg/L) x 8.34 (conversion factor) = lbs/day. However, the design capacity will incrementally increase to 15 MGD, as the phased plant upgrade approaches completion. The mass-based effluent limitation will accordingly be modified upon certification and approval of increased treatment plant capacity. During wet-weather storm events in which the flow exceeds the design capacity, the mass discharge rate limitations shall not apply, and concentration limitations will provide the only applicable effluent limitations.
- [4] For priority pollutants, Section 2.4.5 of CTR *Compliance Determination*, reads, "Dischargers shall be deemed out of compliance with an effluent limitation if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML."
- [5] This effluent limitation will not be in effect until May 17, 2010, and until that time the Discharger shall comply with the interim limits established in Section I.A.(9) of the accompanying NPDES Order No. R4-2006-0085.
- [6] This is the **wet weather** waste load allocation (WLA), according to Resolution No. R05-006, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries (LA River Metals TMDL)*, adopted by the Regional Board on June 2, 2005. The Metals TMDL was approved by the State Board, with the adoption of Resolution No. 2005-0077. On December 9, 2005 and December 22, 2005, respectively, OAL and USEPA approved the *LA River Metals TMDL*. It went into effect on January 11, 2006. According to the LA River Metals TMDL, wet weather is "when the maximum daily flow in the River is equal to or greater than 500 cfs."
- [7] This is the **dry weather** waste load allocation (WLA), according to Resolution No. R05-006, *Amendment to the Water Quality Control Plan for the Los Angeles Region to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries (LA River Metals TMDL)*, adopted by the Regional Board on June 2, 2005. The Metals TMDL was approved by the State Board, with the adoption of Resolution No. 2005-0077. On December 9, 2005 and December 22, 2005, respectively, OAL and USEPA approved the *LA River Metals TMDL*. It went into effect on January 11, 2006. According to the LA River Metals TMDL, dry weather is "when the maximum daily flow in the River is less than 500 cfs."
- [8] This effluent limitation will not be in effect until January 11, 2011, five years after the Metals TMDL effective date, according to the LA River Metals TMDL Implementation Section.
- [9] According to the LA River Metals TMDL, the mass-based limits for Cadmium and Lead will not apply during wet weather.
- [10] Total trihalomethanes is the sum of concentrations of the trihalomethane compounds: bromodichloromethane, bromoform, chloroform, and dibromochloromethane. This limit is based on the Basin Plan WQO incorporation of MCLs by reference.
- [11] This effluent limitation will not be in effect until October 10, 2011, and until that time the Discharger shall comply with the interim limits established in Section I.A.(9) b & c of the accompanying NPDES Order No. R4-2006-0085.
- [a] Based on most stringent CTR criteria [Criterion Continuous Concentration (CCC)] for the protection of freshwater aquatic life. To arrive at this calculated limitation, the CTR CCC was adjusted, according to SIP Section 1.4.

Federal Register Vol. 65, No. 97, page 31689, discusses the basis for the aquatic life criteria in the CTR. The Criterion Maximum Concentration (CMC), a short term concentration limit, and the Criterion Continuous Concentration (CCC), a four day concentration limit, are designed to provide protection of aquatic life and its uses from acute and chronic toxicity to animals and plants. The criteria are intended to identify average pollutant concentrations which will produce water quality generally suited to maintenance of aquatic life and designated uses while restricting the duration of excursions over the average so that total exposures will not cause unacceptable adverse effects.

Federal Register Vol. 65, No. 97, page 31691, discusses how CCC is intended to be the highest concentration that could be maintained indefinitely in a water body without causing an unacceptable effect on aquatic community or its uses.

- [b] Based on most stringent CTR criteria for the protection of human health from consumption of organisms only. CTR criteria was adjusted according to SIP Section 1.4, to arrive at this calculated limitation.

E. Basis for priority pollutants:

Mixing zones, dilution credits, and attenuation factors are not used in the accompanying Order and would be inappropriate to grant, at this time, in light of the factors discussed in Section VII.19 through I of this Fact Sheet.

Allowance of a mixing zone is in the Regional Board's discretion under Section 1.4.2 of the SIP and under the Basin Plan (Basin Plan Chapter 4, page 30). If the Discharger subsequently conducts appropriate mixing zone and dilution credit studies, the Regional Board can evaluate the propriety of granting a mixing zone or establishing dilution credits.

F. Example calculation of a CTR-based limit: Lindane (Gamma-BHC):

Is a limit required? What is RPA?

- From Table R, *Reasonable Potential & Limit Derivation*, we determined that Reasonable potential analysis (RPA) = Yes, therefore a limit is required.

Step 1 – Identify applicable water quality criteria.

From California Toxics Rule (CTR), we can obtain the Criterion Maximum Concentration (CMC) and the Criterion Continuous Concentration (CCC).

Freshwater Aquatic Life Criteria:

CMC = 0.95 (CTR page 31715, column B1) and

CCC = None available; and

Human Health Criteria for Organisms only = 0.063 µg/L.

Step 2 – Calculate effluent concentration allowance (ECA)

ECA = Criteria in CTR, since no dilution is allowed.

Step 3 – Determine long-term average (LTA) discharge condition

a. Calculate CV:

$$\begin{aligned} \text{CV} &= \text{Standard Deviation} / \text{Mean} \\ &= 0.6 \end{aligned}$$

b. Find the ECA Multipliers from SIP Table 1 (page 7), or by calculating them using equations on SIP page 6. When CV = 0.6, then:
ECA Multiplier acute = 0.321 and
ECA Multiplier acute = 0.527.

c. LTA acute = ECA acute x ECA Multiplier acute
= $0.95 \mu\text{g/L} \times 0.321 = 0.30495 \mu\text{g/L}$

d. LTA chronic = ECA chronic x ECA Multiplier chronic
= none available

Step 4 – Select the lowest LTA.

In this case, LTA chronic < LTA acute, therefore lowest LTA = $0.305 \mu\text{g/L}$

Step 5 – Calculate the Average Monthly Effluent Limitation (AMEL) & Maximum Daily Effluent Limitation (MDEL) for AQUATIC LIFE.

a. Find the multipliers. You need to know CV and n (frequency of sample collection per month). If effluent samples are collected 4 times a month or less, then n = 4. CV was determined to be 0.6 in a previous step.
AMEL Multiplier = 1.55
MDEL Multiplier = 3.11

b. AMEL aquatic life = lowest LTA (from Step4) x AMEL Multiplier
= $0.305 \mu\text{g/L} \times 1.55 = 0.47275 \mu\text{g/L}$

c. MDEL aquatic life = lowest LTA (from Step4) x AMEL Multiplier
= $0.305 \mu\text{g/L} \times 3.11 = 0.9486 \mu\text{g/L}$

Step 6 – Find the Average Monthly Effluent Limitation (AMEL) & Maximum Daily Effluent Limitation (MDEL) for HUMAN HEALTH.

a. Find factors. Given CV = 0.6 and n = 4.
For AMEL human health limit, there is no factor.
The MDEL/AMEL human health factor = 2.01

b. AMEL human health = ECA = $0.063 \mu\text{g/L}$

c. MDEL human health = ECA x MDEL/AMEL factor
= $0.063 \mu\text{g/L} \times 2.01 = 0.13$

Step 7 – Compare the AMELs for Aquatic life and Human health and select the lowest. Compare the MDELs for Aquatic life and Human health and select the lowest.

a. Lowest AMEL = $0.063 \mu\text{g/L}$ (Based on Human Health protection)

b. Lowest MDEL = $0.13 \mu\text{g/L}$ (Based on Human Health protection)

G. A numerical limit has not been prescribed for a toxic constituent if it has been determined that it has no reasonable potential to cause or contribute to excursions of water quality standards. A narrative limit to comply with all water

quality objectives is provided in *Standard Provisions* for the priority pollutants which have no available numeric criteria.

- H. The numeric limitations contained in the accompanying Order were derived using best professional judgement and are based on applicable state and federal authorities, and as they are met, will be in conformance with the goals of the aforementioned water quality control plans, and water quality criteria; and will protect and maintain the designated existing and potential beneficial uses of the receiving waters.

X. Groundwater Recharge Protection

1. The issue of using MCLs as the basis for establishing final effluent limitations in an NPDES permit, to protect the GWR beneficial use of surface waters and the MUN beneficial use of the groundwater basins, has been addressed by the State Board in its WQO No. 2003-0009, in the *Matter of the Petitions of County Sanitation District No. 2 of Los Angeles and Bill Robinson for Review of Waste Discharge Requirements Order No. R4-2002-0142 and Time Schedule Order No. R4-2002-0143 for the Whittier Narrows Water Reclamation Plant*. The groundwater recharge (GWR) beneficial use is premised on a hydrologic connection between surface waters and groundwater, where the groundwater in this case is designated with an existing MUN beneficial use. Since there are no criteria or objectives specific to the GWR beneficial use, the Los Angeles Regional Board's Basin Plan, staff based effluent limitations for the GWR use on the groundwater MUN objectives. By doing so, the Regional Board ensures that the use of surface waters to recharge groundwater used as an existing drinking water source is protected. The fact that there are no criteria or objectives specific to the GWR beneficial use does not deprive the Regional Board the ability to protect the use. The CWA contemplates enforcement of both beneficial uses as well as criteria in state water quality standards. In California, an NPDES permit also serves as waste discharge requirements under state law.
2. The prior NPDES permit for the Burbank WRP contained effluent limits for arsenic, bis(2-ethylhexyl)phthalate, total trihalomethanes, and iron, based on MCLs and expressed as daily maximum, which had to be met at the end of pipe. Reasonable potential analysis was conducted using new data and the TSD methodology. The analysis showed that the discharge had reasonable potential to exceed the MCLs for the constituents listed in the above table, therefore a limit is included in the permit. In the tentative Order dated August 31, 2006, the point of compliance was changed from surface water to groundwater for these four MCL-based limits, given the conditionally designated p*MUN beneficial use for the Burbank Western Channel, the need to protect the groundwater recharge (GWR) beneficial use in the surface waters, and the MUN beneficial use in the groundwater basins. In addition, the limit was expressed as a monthly average rather than a daily maximum, because it was assumed that the groundwater basins have assimilative capacity for these pollutants. The monthly averaging period is justified because these pollutants are not expected to produce acute effects. The City raised the issue that, aside from their effluent, there are several sources recharging the groundwater basins. The City does not have the ability to control those other sources. However, the City of Burbank does have control over what they discharge.

through their final effluent outfall. Since the discharge has reasonable potential to exceed the MCLs, final effluent limitations are needed. Therefore, the groundwater receiving water limitations have been deleted and replaced with end-of-pipe limitations.

The California MCLs are the same as the USEPA MCLs for iron and total trihalomethanes, therefore the limits for iron and total trihalomethanes, based on the MCLs, are not more stringent than federal requirements. The California MCL for Arsenic is less stringent than the USEPA MCL, therefore the limit for Arsenic is not more stringent than the federal requirement. The California MCL for Bis(2-ethylhexyl)phthalate is more stringent than the USEPA MCL and more stringent than the CTR criteria, therefore the monthly average effluent limitation for Bis(2-ethylhexyl)phthalate is the only limit more stringent than the federal requirements. Therefore, an economic analysis should be done for Bis(2-ethylhexyl)phthalate.

3. According to Section 13241 of the CWC, the factors to be considered by a regional board in establishing water quality objectives include, but are not necessarily be limited to, all of the following:
 - (a) Past, present, and probable future beneficial uses of water.
 - (b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
 - (c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
 - (d) Economic considerations.
 - (e) The need for developing housing within the region.
 - (f) The need to develop and use recycled water.

Regional Board staff have considered all of the above factors.

- (a) The proposed Order is protective of all beneficial uses of surface waters (using CWA) and ground water (using CWC);
- (b) The environmental characteristics of the discharge and of the watershed in which the facility is located have been taken into consideration and provisions of the applicable TMDLs have been incorporated into the Order, in an attempt to restore waters under section 303(d) of the CWA;
- (c) Limitations which could reasonably be achieved have been placed in the Order to protect the water quality of the immediate receiving waters and those located downstream of the discharge point;
- (d) Economic considerations have also been considered
 1. **DHS' Economic Analysis.** As discussed in Section VI.8 of this Fact Sheet, the technical and economic feasibility of regulating MCLs is evaluated as part of the MCL development and adoption process by the California Department of Health Services, a sister agency. The technical feasibility includes an evaluation of commercial laboratories' ability to analyze for and detect the chemical in drinking water, the costs of monitoring, and the costs of treatment required to remove it.